

# Hybrid Optimization Model for Electric Renewables (HOMER)

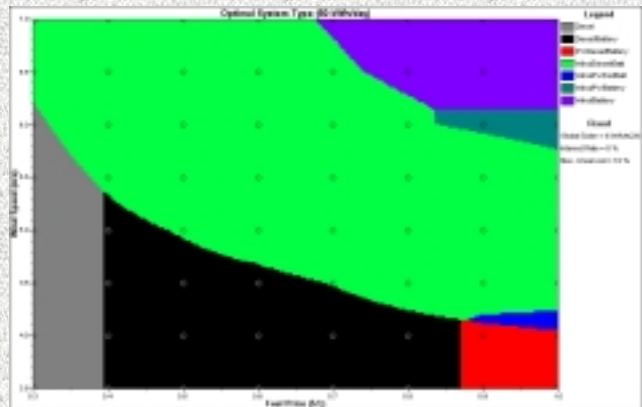
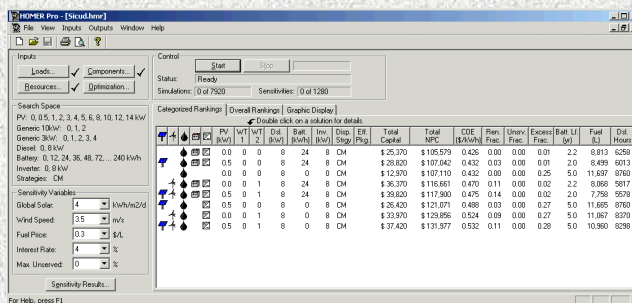
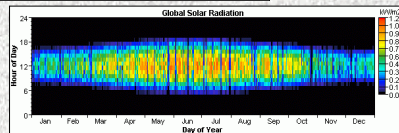
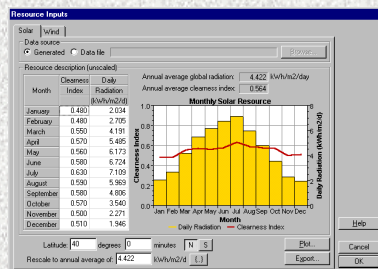
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## HOMER: The Hybrid Optimization Model for Electric Renewables

HOMER is an optimization model for designing stand-alone electric power systems. Given load data, resource data, and component costs, it designs the optimal hybrid system.

HOMER can model any combination of:

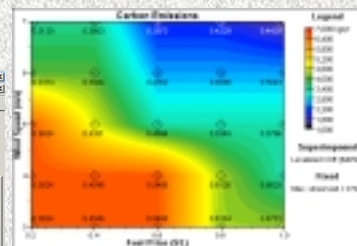
- Wind turbines
- Photovoltaic (PV) panels
- Backup generator
- Battery storage



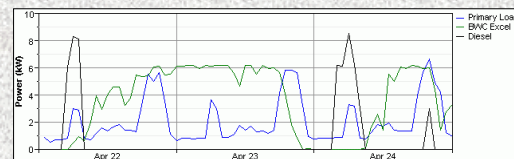
## Speed, Power, and Integrated Graphics

HOMER has many powerful features:

- Thousands of full hourly simulations can be performed per minute.
- Solar and wind data can be synthesized from monthly averages.
- Load management options can be considered.
- Sensitivity analyses can be performed on many inputs at once.
- Colorful graphics assist in the analysis of results.
- Complete on-line documentation is available.



Component	Cost (\$/kW)	Annualized Cost (\$/yr)	Annual GMA (\$/yr)	Annual Fuel (\$/yr)	System Architecture
PV Array	7,000	815	805	10	1 kW PV
GenSet 3kW	11,300	1,561	1,331	170	1 GenSet 3kW
Battery	2,360	1,346	1,415	597	25 kWh Battery
Inverter	2,367	503	468	33	4 kW Inverter
Controller	2,367	503	468	33	4 kW Controller
Transformer	2,367	503	468	33	4 kW Transformer
Wiring	2,367	503	468	33	4 kW Wiring
Other	2,367	503	468	33	4 kW Other
<b>Totals</b>	<b>30,717</b>	<b>5,003</b>	<b>5,245</b>	<b>2,303</b>	



- HOMER Pro, HOMER Express, and Village Power for Renewables (ViPOR) make up NREL's Village Power Planning Model Suite.
- ViPOR is a separate model that optimizes minigrids versus stand-alone systems.
- Fully functional, no-cost versions are available at: <http://www.nrel.gov/international/homer>
- There are currently 300 users in 55 countries.
- For further information contact:
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